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Stated Meeting, August 20, 1844.

VICE PRESIDENT MORTON in the Chair.

A paper by Dr. Hallowell, intended for publication, entitled "Descriptions of new species of African Reptiles," was read and referred to the following committee: Dr. Holbrook, Dr. William Blanding, and Rev. J. H. McFarland.

Dr. Morton read a "Description of the head of a Fossil Crocodile from the cretaceous strata of New Jersey," which being intended for publication, was referred to a committee as follows: Mr. Conrad, Mr. R. C. Taylor, and Dr. Holbrook.

Two communications from the American Philosophical Society, dated 21st June and 19th of July, 1844, returning the thanks of the Society for recent numbers of the Academy's Proceedings.

Meeting for Business, August 27, 1844.

VICE PRESIDENT MORTON in the Chair.

The Committee, to whom was referred the following paper read at last meeting, reported in favour of publication.

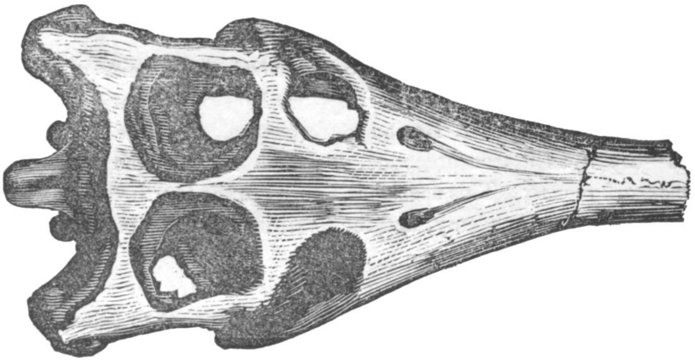
Description of the Head of a Fossil Crocodile from the Cretaceous strata of New Jersey.

By SAMUEL GEORGE MORTON, M. D.

Read Aug. 20, 1844.

CROCODILUS (GAVIALIS ?) *clavirostris.*

Skull very broad posteriorly, whence it tapers in a gradual and triangular manner to a narrow, elongated snout. Orbits very large, oblique, and with but slight marginal elevation. Temporal fossæ of great size, and the spiracles? placed immediately below and before the inner margin of the orbit. Length of the head from the superior margin of the occiput to the broken end of the snout 23 inches: width of the occiput behind, 12½ inches; lateral diameter of orbit 3½ inches; lateral diameter of temporal fossæ 4½ inches. Remaining teeth 13 on each side. Lateral diameter of terminal end of the snout 3¼ inches.



This species is wholly unlike any other, fossil or recent, with which I have been able to compare it. It seems to form an intermediate link between the Gavials and true Crocodiles, for the snout, though long and narrow, is gradually and not abruptly produced from the head, and has probably been from eight to twelve inches longer than it now is.

This remarkably large and admirably preserved relic, was found in the cretaceous limestone which overlies the ferruginous marl near Vincentown, in New Jersey, and has been obligingly presented to our Institution by General William Irick (on whose farm it was discovered,) and William Whitman, Esq. of this city. These strata of cretaceous limestone were first discovered and announced by me in 1829; in which year I published an account of them, with a list of their organic remains, as observed at Timber creek, in Gloucester county.* Since that period I have continued my researches into this interesting section of our geology, which I have subsequently identified in two other localities in New Jersey, viz. Vincentown and the vicinity of Salem, and also in South Carolina west of Charleston; at which latter place the fossils have been chiefly collected by Dr. Ravenel, who is preparing for publication a description of several species hitherto unknown.

I obtained from Timber creek at my first visit, a fragment of the jaw of a Crocodile with three teeth; but the parts were not sufficiently perfect to enable me to decide to which division of this class of animals it pertained. Upon comparing it, however, with the specimen now under consideration, it appears to belong to a Gavial, and in all probability to the *G. clavirostris.*

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*Vide Journal of the Acad. N. S., vol. VI.

Dr. Harlan, many years ago, described the remains of a fossil crocodile from the lower or ferruginous beds of this series.* These fragments enabled Dr. Harlan to reconstruct the head so far as to identify it as a true crocodile, to which he gave the name of C. *macrorhyncus.*† This species is figured in the fourth volume of the Journal of the Academy, and the fossil itself is preserved in the Society's collections.

During Mr. Lyell's recent visit to this country, he also obtained some fragments of a fossil crocodile which appear to belong to the Procælian division of this family.‡

Prof. Buckland remarks that "as there were scarcely any mammalia during the secondary periods, whilst the waters were abundantly stored with fishes, we might, *à priori*, expect that if any crocodilean forms had then existed, they would most nearly have resembled the modern Gavial. And we have hitherto found only those genera which have elongated beaks in formations anterior to, and including the chalk; whilst true crocodiles, with a short and broad snout, like that of the cayman and alligator, appear for the first time in strata of the tertiary periods, in which the remains of mammalia abound.§"

This remark would seem to conflict, in a geological sense, with the observations of Dr. Harlan, as jnst quoted, because his description and figure correspond to those of a true crocodile; while the ***C. clavirostris*** seems, as we have remarked, to possess an intermediate organic structure.

M. Geoffrey St. Hiliare has divided the fossil Gavials into two genera, viz: ***Teleosaurus*** and ***Steneosaurus***, which chiefly differ from each other in the position and form of the anterior termination of the nasal canal. As the terminal portion of the snout of the present specimen has not been discovered, we cannot avail ourselves of this generic distinction; and this uncertainty must continue until the recovery of the deficient portion may enable us to decide the question.

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* Journal of the Acad. N. S. Vol. IV.

† Medical and Physical Researches, p. 369.

‡ Amer. Journal of Science. Vol. XLVII., p. 214.

§ Bridgewater Treatise, Vol. I. p. 251.

The following list embraces all the organic remains hitherto discovered in New Jersey, in the same strata with the *Crocodilus clavirostris:* they are described in the sixth and eighth volumes of the Society's Journal.

SQUALUS, several species; BELEMNITES? *ambiguus*, (M.); PLANULARIA *cuneata*, (M.); Nautilus Dekayi? (M.); Scalaria annulata, (M.); Cirrus crotaloides, (M.); Vermetus rotula, (M.); Gryphæa vomer, (M.); Gryphæa convexa, (Say.); Pinna rostriformis, (M.); Teredo tibialis, (M.); Cidarites diatretum, (M.); Cidaretes armiger, (M.); Nucleolites crucifer, (M.); Ananchytes cinctus, (M.); Ananchytes fimbriatus, (M.); Flustra sagena, (M.); Eschara digitata, (M.); Retepora ——, fragments; Anthophyllum atlanticum, (M.); Alveolites cepularis, (M.); Alcyonium ——.

ELECTION.

Richard K. Haight, Esq., of New York, was elected a Correspondent, and

James Dundas, Esq., of Philadelphia, a member of the Academy.